NETGEAR®

ProSAFE® WC7600 Premium Wireless Controller

Data Sheet

WC7600

High Performance Enterprise-Class Wireless Controller

The NETGEAR ProSAFE WC7600 Premium Wireless Controller is a fully featured enterprise class, high performance and secured wireless controller capable of managing up to 150 Access Points and 6,000 concurrent clients per cluster. The WC7600 delivers ultra-fast Access Point discovery, Layer 2 and Layer 3 fast roaming, multiple 10 Gigabit connectivity, a captive portal for guest access, fully distributed architecture, and ease of configuration and management.

The NETGEAR ProSAFE WC7600 Premium Wireless Controller manages the full line of NETGEAR ProSAFE Access Points, from entry level single band APs (WNAP210 and WNAP320), business class dual band APs (WNDAP350 and WNDAP360), high performance 3x3:450 Mbps per radio dual band selectable and concurrent APs (WNDAP620 and WNDAP660), to specialized in-wall mounted APs (WN370), all with a single click of a mouse.

Unlike other Wireless systems that are costly, complex and cumbersome to deploy, the WC7600 wireless controller is ideal for K-12 education, hospitality, and healthcare deployments. Designed with simplicity in mind for management and ease of use, it offers enterprise grade functionality and capability for small to mid-sized organizations, without the cost and complexity of big IT.

Features

Highly scalable

- Supports up to 50 Access Points and 2,000 concurrent clients per controller

- Stack up to three WC7600 per cluster

- Supports up to 150 Access Points and 6,000 concurrent clients per controller cluster

Multiple 10 Gigabit connectivity

- Consists of 2x10G connectivity with SFP+ form factor

- Backward compatible with 1G connectivity with SFP form factor

- Additional 1x1G port with RJ-45 Copper connectivity

Ultra-fast Access Point discovery with Ufast™

- Ufast™ AP discovery provides super-fast AP discovery

- Improves reliability and shortens setup time

- Secured communication between AP and WC7600

Distributed and local forwarding

- Data traffic forwarded to the best path without traversing the controller

- Eliminates controller bottleneck for high throughput 802.11n APs

- Intelligent tunneling with Layer 2 and Layer 3 roaming

- High Redundancy

- Two redundant, hot-swap power supplies (PSU) (one PSU comes with the controller; second optional PSU can be ordered separately)

- Two removable fan trays provide front-to-back cooling airflow for best compatibility with data center hot aisle/cold aisle airflow patterns

Enterprise-grade and feature-rich

- Layer 2 and Layer 3 seamless roaming

- Dynamic RF adjustments

- WLAN healing for automatic RF coverage in the case of AP failure

- Rogue AP detection

- Bandsteering to optimally load balance traffic between 2.4 and 5GHz

Investment protection

- Dynamically moves clients from a congested frequency (typically 2.4GHz) onto a less congested one (5GHz)

- Supports ProSAFE Access Points

- 802.11ac-ready for future deployments

- Hassle-free, plug-and-replace upgrade with WC7520

Industry-leading warranty

This product is backed by a NETGEAR limited ProSAFE® Lifetime Hardware Warranty

- ProSUPPORT Lifetime Chat Technical Support (Remote diagnostics performed by our technical experts for prompt resolution of technical issues)

- ProSUPPORT 90 days Live Phone Technical Support 24 x 7

- Lifetime Next Business Day (NBD) Hardware replacement (See http://onsite.netgear.com for coverage, availability and terms and conditions)

- Includes Lifetime Next Business Day Hardware Replacement

*Region dependent. Please check with your local NETGEAR representative

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Supported Access Points

Access Points	Description	Typical Deployment	Product Image (Front)	Product Image (Back)
WNDAP660	Wireless-N 3x3:900 Mbps Dual Band Concurrent Premium Access Point	Medium enterprise, higher education, mid-sized hotels and hospitals		
WNDAP620	Wireless-N 3x3:450 Mbps Dual Band Selectable Premium Access Point	Medium enterprise, higher education, mid-sized hotels and hospitals		
WNDAP360	Wireless-N 2x2:600 Mbps Dual Band Concurrent Access Point	Small to medium enterprise, K-12 schools with advanced Wi-Fi, hotels, mid-sized hospitals		
WNDAP350	Wireless-N 2x2:600 Mbps Dual Band Concurrent Access Point (Metal)	Warehouse, transportation, hardened locations		
WNAP320	Wireless-N 2x2:300 Mbps Single Band Access Point	Small to medium enterprise, K-12 with basic Wi-Fi		
WNAP210	Wireless-N 2x2:300 Mbps Single Band Access Point	Entry level small to medium enterprise		
WN370	Wireless-N 2x2:300 Mbps Wall Mount Single Band Access Point	Small to medium hospitality requiring per room wire/wireless access		
WNDAP380R*	Wireless-N 2x2:600 Mbps Dual Band Concurrent Access Point with RFID	Medium to large hospitals, clinics		

*selected regions

Features

Scalable Architecture

The NETGEAR WC7600 Premium Wireless Controller supports up to 50 APs (with activation of 5 individual 10 AP licenses) and is stackable up to three controllers in a cluster to support up to a total of 150 Access Points. To activate the management of AP, a pay-as-you go licensing of 10 AP licenses ensure that the user only pays for what is needed.

Centralized Management

Deployed as an overlay on the existing wired network infrastructure, the NETGEAR ProSAFE WC7600 Premium Wireless Controller simplifies the network management by providing a single point of management for the entire wireless network. Easy to set up, the WC7600 Controller discovers all supported access points in the network, even across VLANs and subnets. Once identified, the access points are provisioned in minutes. The discovery process follows an efficient and fast protocol in Ufast™.

Robust Security

With identity-based security features such as support for RADIUS, Active Directory and internal or external AAA server, the NETGEAR ProSAFE WC7600 Premium Wireless Controller truly unifies wired and wireless access without compromising on security. Management VLAN is configurable and up to 8 security configuration profiles (SSID, 802.11i security, VLAN, ACLs, radio parameters) can be active. Rogue AP detection permits rogue APs classification (friendly or hostile). Standard RADIUS compliance enables support for third-party authentication and billing system implementation. Scheduled wireless on/off times permits the wireless network to be completely unavailable during specified non-business hours.

Guest Access, Captive Portal and Logging

Guest access allows restricted access to the network, using an integrated captive portal. Two methods of entry are provided, either assisted or self-certified. In the assisted model, the receptionist can create a user name and password for guests in the GUI and the NETGEAR ProSAFE WC7600 Premium Wireless Controller hosts a captive portal where guests can enter their pre-configured credentials to gain access to the network. Alternatively, the NETGEAR ProSAFE WC7600 Premium Wireless Controller hosts a guest portal where guests can register themselves before entering the network. Backend VLAN policies ensure restricted access to guests, prohibiting them any access to the sensitive data on the corporate network. Guest activity logs are available.

RF Management and Hole Detection

Automatic control of AP transmit power and channel allocation ensures coverage by minimizing interferences. Automatic WLAN healing after loss of AP or due to RF interferences adapts the power and channel of the other APs around the area. Scheduled automatic channel allocation authorizes an enterprise-class reliable wireless experience.

UFast™

Ufast is an innovative approach to expedite the communication between the AP and the Controller during the discovery process. Typical AP to controller discovery can take multiple seconds and depending on the number of AP's in the network, the discovery process can take minutes. With the Ufast protocol, the AP discovery is nearly instantaneous, and resulting in an fast and easy set up stage.

Load Balancing and Rate Limiting

Automatic load balancing of clients across APs is provided based on number of clients per AP and signal strength threshold/data rate threshold of clients on the BSS. Rate limiting is provided by SSID. Load balancing and rate limiting ensure fair bandwidth allocation among all clients for robust wireless connectivity.

Bandsteering

Bandsteeering provides the capability to automatically direct dual band clients to the most desired frequency band (2.4 or 5 GHz) to improve client's experience and maximize over the air resources.

Fast Roaming and Voice over Wi-Fi

The NETGEAR ProSAFE WC7600 Premium Wireless Controller supports rapid mobility across VLANs and subnets including 802.11i pre-authentication and fast roaming support (FRS). Seamless L2 and L3 roaming provides support for latency-sensitive applications such as video, audio and voice over wireless. Wi-Fi Multimedia (WMM) advanced prioritization extends Wi-Fi's high-quality end-user experience to voice applications (VoWi-Fi).

Monitoring and Reporting

The WC7600 uses a heartbeat mechanism between the controller and the AP. It is monitored based on several factors, such as RF interference, clients, error levels, etc. Each AP is constantly monitored (number of clients, traffic load, RF interference, packet error levels and retransmission statistics). Statistics provide reliable metrics per AP, per client, per floor and for the entire wireless network.

Comprehensive Dashboard
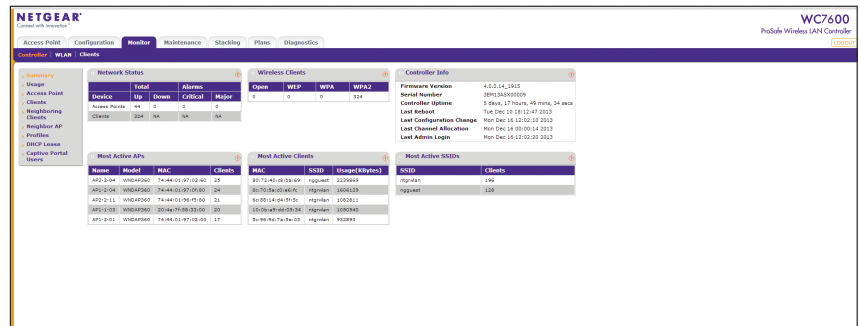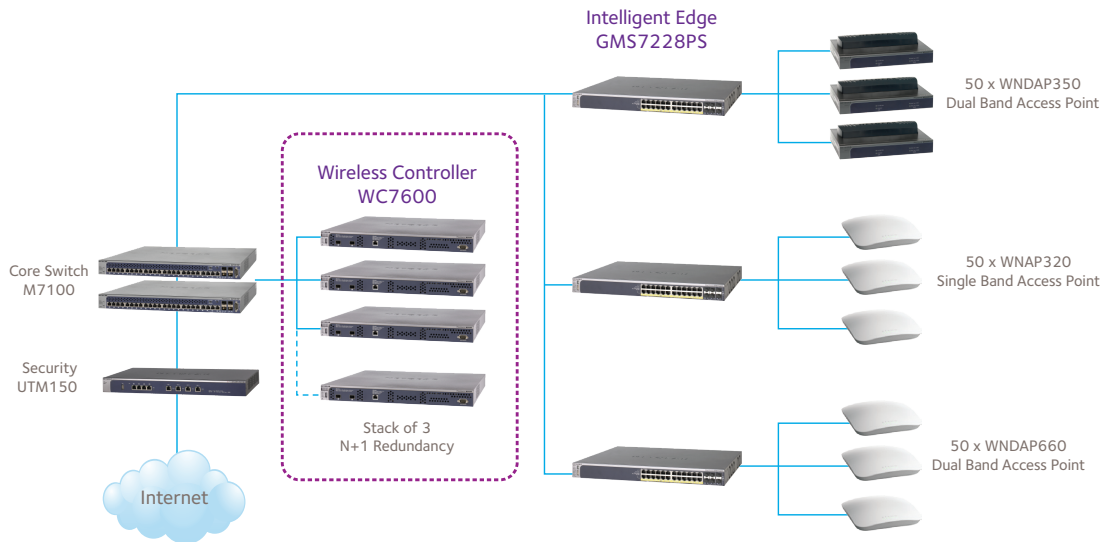
NETGEAR®

Features

Performance

The best of centralized and distributed architectures are implemented by the NETGEAR ProSAFE High Capacity Wireless Controller for outstanding Wireless-N performance. Local traffic is automatically switched at the access points level for fastest processing, when roamed L3 traffic is processed at the controller level with advanced data control. Real-time applications such as VoWi-Fi require perfect inter-subnet/inter-VLAN mobility: WC7600 encryption tunneling delivers enterprise-class fast roaming without any impact on Layer 2/Layer 3 performance.

Supported Access Points

Supporting standard NETGEAR access points, the WC7600 High Capacity Premium Wireless Controller enables customers to select the right access points for their needs, including mixing models to provide the right coverage. The standard access points are converted to dependent access points. Supported models include professional-class ProSAFE access points WNDAP660 (high performance dual band concurrent), WNDAP620 (high performance dual band selectable) WNDAP360 (dual band), WNDAP350 (dual band), WNAP320 (single band), WNAP210 (single band), WN370 (wall mount single band) and WNDAP380Rv2 (integrated WiFi and RFID) all with Power over Ethernet capabilities and lifetime warranties.

Example Deployment

Technical Features

RF MANAGEMENT	
Automatic Channel Allocation	• Automatic channel distribution to minimize interferences • Auto-channel allocation taking into consideration of the environment, interferences, traffic load and neighboring AP • Modifiable list of corporate channels to be used • Scheduled mode for Auto-channel allocation • Automatic mode in case of high level of interferences available
Automatic Power Control	• Optimum transmit power determination based on coverage requirements • Automatic power control mode available • Neighborhood scan of RF environment to minimize neighboring AP interference and leakage accross floors
Coverage Hole Detection	• Automatic mode or Manual mode • Down APs or compromized RF environment detection with alerts • Self healing: automatic neighboring AP power increase to cover coverage losses
Load Balancing	• APs load monitoring and overloading prevention • Clients redirection to lightly loaded neighboring APs
Fast Roaming	• Seamless rapid mobility across VLAN and subnets • Including 802.11i pre-auth and fast roaming • Fast Roaming support accross L2, and L3 for video, audio and voice over wireless client
QUALITY OF SERVICE	
WMM Quality of Service	WMM (802.11e) prioritizes traffic for both upstream traffic from the stations to the Access Points (station EDCA parameters) and down stream traffic from the Access Points to the client stations (AP EDCA parameters)
WMM Queues in decreasing order of priority	• Voice: The highest priority queue with minimum delay, which makes it ideal for applications like VoIP and streaming media • Video: The second highest priority queue with low delay is given to this queue. Video applications are routed to this queue • Best Effort: The medium priority queue with medium delay is given to this queue. Most standard IP application will use this queue • Background: Low priority queue with high throughput. Applications, such as FTP, which are not time-sensitive but require high throughput can use this queue
WMM Power Save option	WMM Power Save helps conserve battery power in small devices such as phones, laptops, PDAs, and audio players using IEEE 802.11e mechanisms
WIRELESS SECURITY	
Client Authentication Protocols	• Open, WEP, WPA/WPA2-PSK • 802.11i/WPA/WPA2 Enterprise with standard interface to external AAA / RADIUS Server
Distinct AAA Server per SSID	Yes
RADIUS Accounting Protocol	Per Client tracking for: • Bytes Tx/Rx • Login/Logout Time
LDAP Based Authentication	• Standard interface to external LDAP Server / Microsoft® Active Directory Server • Per Client Based LDAP policies for user bandwidth rate limiting available
Integrated AAA Server	Local Database Authentification based on WC7520 internal RADIUS Server
Guest Access	• Integrated Captive Portal available for client authentication in a Security Profile • Password based authentification mode: local user store available, receptionist assigned user name / password • Open authentification mode: guests auto registration with email address (up to 64 email stored) • Extraction of logs of guest activity
Captive Portal	Configurable Portal page, including image files
Rogue Access Points	• Rogue AP definition: AP with radio SSID oberved by any of the Managed AP and seen transmitting on same L2 wired network • Detection and Mapping of up to 512 Rogue APs

Technical Features

WIRELESS NETWORK MONITORING	
Monitoring Summary	Summary of the Managed Access Points status, rogue Access Points detected, Wireless stations connected, Wireless Controller Information and Wireless Network usage
Managed Access Points	APs status for the Managed Access Points and details that includes configuration settings, current Wireless settings, current Clients and detailed Traffic statistics
Rogue Access Points	• Rogue Access Points Reported • Rogue Access Points in same channel • Rogue Access Points in interfering channels
Wireless Clients	• Clients statistics and details per AP, per SSID, per floor, per location • Black listed Clients, Roaming Clients
Wireless Network Usage	Network Usage Statistics display plots of average received/transmitted network traffic per Managed Access Point. Three different plots show Ethernet, Wireless 802.11 b/bg/ng and 802.11 a/na mode traffic separately
DHCP Leases	DHCP details for Wireless Clients
MANAGEMENT	
Management Interface	HTTP, SNMP v1/v2c, Telnet, Secure Shell (SSH)
Logging and Reporting	If available Syslog server on the network, the Wireless Controller and Managed Access Points can send all Logs. Logs are also available on the GUI and ready to download (Log export file)
Diagnostics	Managed Access Points Ping
Maintenance	Save/Restore Configuration, Restore to Factory Defaults, Admin password change, Add user (read-only), Firmware Upgrade via Web browser for the Wireless Controller and the Managed Access Points
Dual Boot Image	Supported
SNMP	SNMP v1/v2c
IEEE AND IETF RFC STANDARDS	
Wired IEEE Standards	• IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T • IEEE 802.1Q VLAN tagging
RFC – System Facilities	• RFC 2131 DHCP • RFC 768 UDP • RFC 791 IP • RFC 792 ICMP • RFC 793 TCP • RFC 1519 CIDR • RFC 1542 BOOTP
RFC – Security	• WPA-PSK, WPA2-PSK • IEEE 802.11i • WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys) • AES: CBC, CCM, CCMP • DES: DES-CBC, 3DES • SSL and TLS: RC4 128-bit and RSA 1024- and 2048-bit • DTLS: AES-CBC • IPSec: DES-CBC, 3DES, AES-CBC • RFC 2406 IPsec • RFC 2409 IKE • RFC 3280 Internet X.509 PKI Certificate and CRL Profile • RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec • RFC 3686 Using AES Counter Mode with IPsec ESP • RFC 4347 Datagram Transport Layer Security • RFC 4346 TLS Protocol Version 1.1

Technical Features

IEEE AND IETF RFC STANDARDS (continued)	
RFC – AAA (Authentication, Authorization, Accounting)	• IEEE 802.1X • RFC 2548 Microsoft Vendor-Specific RADIUS Attributes • RFC 2716 PPP EAP-TLS • RFC 2865 RADIUS Authentication • RFC 2866 RADIUS Accounting • RFC 2867 RADIUS Tunnel Accounting • RFC 2869 RADIUS Extensions • RFC 3576 Dynamic Authorization Extensions to RADIUS • RFC 3579 RADIUS Support for EAP • RFC 3580 IEEE 802.1X RADIUS Guidelines • RFC 3748 Extensible Authentication Protocol • Web-based authentication • TACACS support for management users
RFC – Management	• SNMP v1, v2c • RFC 854 Telnet • RFC 1155 Management Information for TCP/IP-Based Internets • RFC 1156 MIB • RFC 1157 SNMP • RFC 1213 SNMP MIB II • RFC 1350 TFTP • RFC 1643 Ethernet MIB • RFC 2030 SNTP • RFC 2616 HTTP • RFC 2665 Ethernet-Like Interface types MIB • RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions • RFC 2819 RMON MIB • RFC 2863 Interfaces Group MIB • RFC 3164 Syslog • RFC 3418 MIB for SNMP • RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs • Enterprise private MIBs
Ordering Information – Controller	
Worldwide, except China	WC7600-10000S
China	WC7600-100PRS
Ordering Information – Licenses	
Incremental 10-AP Upgrade	WC10APL-10000S
Incremental 50-AP Upgrade	WC50APL-10000S
PROSUPPORT SERVICE PACKS	
OnCall 24x7, Category 3	PMB0333

Technical Specifications

Physical Characteristics

Power
- 165 watts with internal dual power supply
- 100–240V AC Universal
- IEC 320 connector

Physical Dimensions (1 RU)
- Dimensions (L x W x H):
  440 x 430 x 43 mm
  (17.34 x 16.92 x1.7 in)

Weight
- 1 PSU: 6.32 kg (13.94 lb)
- 2 PSU: 7.57 kg (16.68 lb)

Environmental Conditions

Operating Temperature
- 32° to 113° F
  (0° to 45° C)

Storage Temperature
- –4° to 150° F
  (–20° to 70° C)

Operating Relative Humidity
- Minimum 10%
- Maximum 90%

Storage Humidity
- Minimum 5%
- Maximum 95%

MTBF
- WC7600 (@25C): 664,072 hours
- Fan Tray (@25C): 676,058 hours
- Power Supply (@25C): 938,490 hours

Power Consumption
- Maximum: 82.3W or 281 BTU/hr

Compliance

- ENGR 10049 EST Environmental Stress Test Guideline
- ENGR 10045 EVT Engineering Validation Test Guideline
- ENGR 10048 CVT Compliance Validation Test Guideline
- ENGR 10046 SVT System Validation Test Guideline
- ENGR 10023 HALT Highly Accelerated Life Test Guideline
- ENGR 10036 CDG Component Derating Guideline

Capacity

Managed APs
- 50 per controller

Controllers per Cluster
- 3 per cluster

WLANs (BSSIDs)
- 144

Concurrent Stations
- 2,000 per controller
- 6,000 per cluster

Guest Portal

Profile Groups per Controller
- 9 (1 Basic + 8 Advanced)

Profile per Controller
- 128

Security Profile Groups per Profile Group
- 9 (1 Basic + 8 Advanced)

Detectable rogue AP
- Maximum: 512

Features

- Layer 2 Discovery
- Layer 3 Discovery
- L2 Roaming
- L3 Roaming
- Layer 2 isolation
- Access List
- Auto Channel Allocation
- Radius, AD, and LDAP proxy
- Remote AP
- Client load balancing
- Bandsteering
- Auto Power Control
- Coverage Hole Detection
- Rate Limiting on per SSID
- Rate Limiting on per client
- 802.11e WMM
- Schedule AP on/off
- Captive Portal
- Stacking Redundancy (N+1)
- Heatmap

Technical Specifications

Interfaces and Indicators

10G SFP+ Ports for Data and Control

- Two 1/10Gbps auto-sensing and auto-negotiation

1G Copper RJ-45 Ports for Management

- One 10/100/1000 Mbps auto-sensing and auto-negotiation

USB Ports

- One USB 2.0 Type A connector

Console

- One 1 D-Sub-9 MALE connector

LED

- Power, status, fan, stacking master

Default Reset

Networking

IP

- IPv4
- IPv6

VLANs

- 64+1 Mgmt
- # of VLANs

Redundancy

- Active-standby

Stacking

- Maximum: Three controllers per stack

DHCP Server

Management

Configuration

- Web user interface
- SNMPv1
- SNMPv2

AAA

- Radius (primary and backup)

AP Provisioning

- L2
- L3

Wireless Security Standards

- WPA
- WPA2
- 802.11i

Encryption

- WEP
- TKIP
- AES

Authentication

- 802.1x
- MAC address

Access Control

- L2

Supported APs

- WNDAP660
- WNDAP620
- WNDAP360
- WNDAP350
- WNAP320
- WNAP210
- WNAP210v2
- WN370
- WNDAP380R – (selected region only)

Warranty and Support

NETGEAR Warranty*

- This product is backed by a NETGEAR limited ProSAFE® Lifetime Hardware Warranty.
- ProSUPPORT Lifetime Chat Technical Support (Remote diagnostics performed by our technical experts for prompt resolution of technical issues).
- ProSUPPORT 90 days 24 x 7 Live Phone Technical Support.
- Lifetime Next Business Day (NBD) Hardware replacement (See http://onsite.netgear.com for coverage, availability and terms and conditions).

Product Ordering Information

- WC7600-10000S (For all regions outside of China).
- WC7600-100PRS (For China only)
- WC10APL-10000S (10 AP licenses)
- WC50APL-10000S (50 AP licenses)
- APS300W-10000S (Optional additional power supply module)